

## Ilisagvik College brings microbiology workshops to villages

*For some young students, workshop is their first opportunity to see science in action*

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For the Arctic Sounder

For students from across the North Slope, a recent workshop has given them a chance to see the micro-details of life on a scale they likely hadn't experienced before.

Professor Linda Nicholas-Figueroa has been taking her show on the road, traveling to North Slope villages to hold free microbiology workshops in the communities. She has recently held workshops in Atqasuk and Nuiqsut.

The workshops teach basic microbiology skills with a focus on pipetting. The techniques are then used to run an experiment using polymerase chain reaction (PCR) to amplify DNA from antibiotic-resistant bacteria, that can then be further examined using gel electrophoresis.

In Nuiqsut, ten students, ages 9-20, came to the community center on a recent Saturday afternoon. Nine-year-old Hailie Hopson said this was the first time she really had an opportunity to do science.

"I learned so much!" she said at the end of the day.

The workshop had been requested by Ilisagvik Board of Trustees member Jeremy Kasak. Kasak brought his daughter Madison to participate and, also, got into the fun himself, pipetting tiny dots of colored water to help a staff member finish a sample design.

Students start with colored water, using the pipetted drops to make a variety of designs. Once they're comfortable with the technique, they then use the pipette to transfer DNA samples into various solutions. These mixtures are placed into a thermocycler that uses PCR to make millions of copies of a single part of a strand of DNA. Students also learned to make a molded gel from pre-stained agar for use in the electrophoresis set-up. They pipetted the DNA copies into wells set in the gel. Gel electrophoresis uses an electrical field to separate out the molecules of DNA and the fluorescent stain in the gel allows the results to be viewed under a black light.

In the end, students were able to see a ladder of fluorescent bars indicating that one of the samples they tested contained an antibiotic-resistant bacteria. Another experiment with fluorescence allowed students to look at different colors of fluorescence from highlighter pens with a UVlight viewing box.

Professor Nicholas-Figueroa says she does it for the "aha moment."

"My joy is seeing the excitement in their faces when they learn something new or see something for the first time," she says. The villages, she points out, are more than 500 miles from the next closest university. "They don't have a science lab here, so it might be the first time these kids will see equipment like this."



Professor Nicholas-Figueroa has taught at Ilisagvik for 13 years and is the principal investigator for two NSF grants that involve student research into microbes in snow and permafrost. She hopes the recent workshops will be the first of many.

*If you are interested in hosting a microbiology workshop in your community, contact Professor Nicholas-Figueroa at [linda.nicholas-figueroa@ilisagvik.edu](mailto:linda.nicholas-figueroa@ilisagvik.edu) or 410812- 0534.*

Frances Itta of Atqasuk pipettes DNA samples into a gel in an electrophoresis machine.

Photo provided by Ilisagvik College

Sarah Ahkiviana of Nuiqsut practices pipetting by making a design with colored water.

Photo provided by Ilisagvik College